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EXAMINER	
VOLPER, THOMAS E	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/484,611	Applicant(s) DARUWALLA ET AL.	
	Examiner Thomas Volper	Art Unit 2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31 and 37-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31 and 37-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *15 and 17*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 11, 13, 19, 25, 38 and 43 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 4, 6, 8-14, 16-20, 22-31, 38-41 and 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otani et al. (US 6,449,250) in view of Baskey et al. (US 6,148,410) and Fijolek et al. (US 6,577,642).

Regarding claims 1, 11, 13, 19, 24, 25, 26 and 43, Otani teaches a system wherein a protection central device (1n) takes over the operation of a working central device (10) in communication with a cable modem (70) in the case of a failure (col. 4, lines 42-65). The working and protection central devices of Otani represent the working and protection CMTSs of the present invention. Otani discloses registering the cable modem with the protection device (col. 6, line 61 – col. 7, line 18). In addition, Otani discloses that each central device (10-12, Fig.2) includes a CPU (100, Fig. 3) and a memory (101, Fig. 3) (col. 5, lines 8-15). Inside the memory is a cable modem controller (115, Fig. 3) that maintains and administrates control information of the cable modem (col. 5, lines 51-55).

This control information represents the registration data of the present invention. When the condition is normal, meaning that device (10) is working, the switch device (5, Fig. 2) maintains the connection of device (10) to the transmission path (6, Fig. 2). Only when a failure occurs does the device (10) become disconnected and the device (12) become connected to the transmission path (col. 6, lines 47-58). Otani fails to expressly disclose at least partially registering the cable modem with the protection device prior to the working CMTS becoming unavailable. Otani also fails to expressly disclose that registering the cable modem with the protection CMTS comprises receiving a notification from the cable modem at the protection CMTS.

Baskey discloses at least two Fault Tolerant Recoverable TCP/IP Connection Routers (FTR-CR) where the FTR-CRs have synchronized internal tables and are capable of switching between active and standby states (col. 1, lines 5-11). Each router also includes a synchronization manager (SM) (220) that is used to synchronize internal data or tables of the active and standby routers (100,105) by communicating configuration information between the two routers. This synchronization allows the backup router to takeover without delay when the primary router fails (col. 4, lines 54-67). The backup and primary router are analogous to the protection and working CMTSs of the present invention in that they provide protection against failure to maintain service to a client end over a network. The internal data and tables of each of the routers are analogous to registration data stored in the CMTSs of the present invention.

Fijolek discloses a process of registering a cable modem with a CMTS that includes receiving a notification at the CMTS from the cable modem (col. 21, lines 57-60).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the synchronization feature of Baskey to maintain registration data in both the working device and the protection device before the working device becomes unavailable. At the time the invention was made it also would have been obvious to send a registration message from the cable modem to the protection CMTS as part of the registering with the protection CMTS. One of ordinary skill in the art would have been motivated to maintain registration information at the protection CMTS prior to the working device becoming unavailable to provide a transparent switchover to the protection device that avoided any disruption in service to the cable modem. One of ordinary skill in the art would have been motivated to send a registration message from the cable modem to the protection CMTS in order to let the protection CMTS know that the cable modem was registered and could receive data from the protection CMTS.

Regarding claim 2, 44 and 45, Otani discloses that a memory (101, Fig. 3) in each of the central devices (10-1n, Fig. 1) contains a cable modem controller (115, Fig. 3). This controller (115) administrates control information to the cable modem connected to the central device, including received or transmitted RF signal level control, and settings of RF signal frequencies to the modulator and demodulator of the cable modem (col. 5, lines 51-65). This meets the limitation of optimizing communication on a path between a central device and the cable modem. As described above, it would have been obvious to register the cable modem before a switchover to the protection device in view of Baskey. It also would have been obvious to perform this optimizing of a communication path from the protection device to the cable modem before a switchover to be sure of a smooth and transparent switchover.

Regarding claim 4, Otani discloses a monitor device (7, Fig. 2) that is comprised of a personal computer that runs a monitor device program and automatic switching program. The monitoring program may detect a failure of the working device, which in turn spurs the automatic switching program. This program maintains a network address, i.e. IP address, of the segment on the transmission path side of the central devices (col. 7, lines 1-14).

Regarding claim 6, Otani discloses that the protection device (1n) inherits the IP and MAC address of the segment (R0, Fig. 1) from the transmission path side of device (10), which is the original working device. This way cable modem (80) can continue to receive service (col. 4, lines 60-65).

Regarding claim 8, Otani discloses that the memory (101, Fig. 3), present in all central devices, contains a cable modem controller (115, Fig. 3) that maintains and administrates control information of the cable modem connected to the central device through the CATV transmission path (col. 5, lines 51-55).

Regarding claim 9, Otani teaches that the cable modem controller also executes settings of RF signal frequencies to the modulator and demodulator in the cable modem (col. 5, lines 58-61).

Regarding claim 10, Otani discloses that monitoring device (7, Fig. 1) detects a failure of the working central device (10). A switch device (5, Fig. 1) disconnects device (10) and connects the protection device (1n) (col. 4, lines 42-46).

Regarding claim 12, the system taught by Otani in view of Baskey and Fijolek thus far provides all of the limitations of claim 12 as described with respect to claim 11 above, except fails to disclose that the network is a wireless network. Wireless networks

between a router and a host are well known in the art. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use a wireless network in the system provided by Otani in view of Baskey and Fijolek. One of ordinary skill in the art would have been motivated to do this to provide the host with service if the host became mobile.

Regarding claim 14, Otani discloses that the cable modem controller (115) of each central device can communicate transmit and receive frequency information to the cable modem (col. 5, lines 51-65).

Regarding claims 16 and 27, the system provided by the teaching of Otani in view of Baskey and Fijolek thus far fails to expressly disclose that the registration data includes an IP address for the cable modem. Fijolek discloses a system in which a cable modem (16), in communication with a CMTS, supports transmission and reception of IP datagrams as specified by RFC-791 (col. 9, lines 43-49). The cable modem must have an IP address in order to receive IP datagrams. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include the IP address of the cable modem in the registration data provided by the system of Otani in view of Baskey and Fijolek thus far. One of ordinary skill in the art would have been motivated to do this in order to transmit and receive datagrams from the cable modem.

Regarding claim 17, Otani discloses that the memory (101, Fig. 3), present in all central devices, contains a cable modem controller (115, Fig. 3) that maintains and administrates control information of the cable modem connected to the central device through the CATV transmission path (col. 5, lines 51-55).

Regarding claim 18, Otani teaches that the memory (101) inside the central devices contains a routing controller (114, Fig. 3) and a RIP controller (113, Fig. 3). The routing controller performs routing IP addresses according to routing information administrated by the RIP controller (col. 5, lines 41-50).

Regarding claim 20, Otani teaches that the automatic switching program maintains information including upward/downward RF frequencies. This information of the failed device is transferred to the protection device (col. 7, lines 8-18).

Regarding claim 22, Otani discloses a monitor device (7, Fig. 2) on which is Comprised of a personal computer that runs a monitor device program and automatic switching program. The monitoring program may detect a failure of the working device, which in turn spurs the automatic switching program. This program maintains a network address, i.e. IP address, of the segment on the transmission path side of the central devices (col. 7, lines 1-14).

Regarding claim 23, Otani discloses that the memory (101, Fig. 3), present in all central devices, contains a cable modem controller (115, Fig. 3) that maintains and administrates control information of the cable modem connected to the central device through the CATV transmission path (col. 5, lines 51-55).

Regarding claim 28, Otani discloses that each central device (10-12) includes a cable modem control (115) that administrates and controls RF signal frequencies to the modulator and demodulator of the cable modem (col. 5, lines 51-65).

Regarding claim 29, the system provided by the teaching of Otani in view of Baskey and Fijolek thus far fails to expressly disclose providing telephony service to the cable modem. Fijolek discloses that the cable modem may be connected to the PSTN

(22) for upstream data transmission with telephony return. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide this telephony service in the system provided by Otani in view of Baskey and Fijolek thus far. One of ordinary skill in the art would have been motivated to do this to offer more service options to a user.

Regarding claim 30, Otani discloses that the protection device (1n) inherits the IP and MAC address of the segment (R0, Fig. 1) from the transmission path side of working device (10), which is the original working device. This way cable modem (80) can continue to receive service (col. 4, lines 60-65). Moreover, it is possible that the device (10) informs the failure detection to monitor device (7) by itself (col. 8, lines 47-49).

Regarding claim 31, Otani teaches that the memory (101) inside the central devices contains a routing controller (114, Fig. 3) and a RIP controller (113, Fig. 3). The routing controller performs routing IP addresses according to routing information administrated by the RIP controller (col. 5, lines 41-50)

Regarding claims 38 and 40, Otani discloses a system wherein a central device (10, Fig. 1) operates to provide service to a cable modem (70). This central device acts like the working CMTS of the present invention. In a case of failure of the central device (10), the protection device (1n) takes over. The protection device represents the protection CMTS of the present invention. The IP and MAC addresses associated with that connection are set to the protection device (1n) (col. 4, lines 42-65). Otani discloses a device structure that includes a memory (101), which contains a cable modem controller (115). This controller administrates control information of a cable modem and executes settings of RF signal frequencies to the modulator and demodulator of the cable

modem (col. 5, lines 51-65). Otani also discloses that this structure is common to all central devices (10-12) (col. 5, lines 8-15). Otani fails to expressly disclose registering the cable modem with the protection device prior to the working CMTS becoming unavailable. Otani also fails to disclose that the cable modem maintains these separate settings for each device, working and protection. Otani also fails to expressly disclose that registering the cable modem with the protection CMTS comprises receiving a notification from the cable modem at the protection CMTS.

Baskey discloses at least two Fault Tolerant Recoverable TCP/IP Connection Routers (FTR-CR) where the FTR-CRs have synchronized internal tables and are capable of switching between active and standby states (col. 1, lines 5-11). Each router also includes a synchronization manager (SM) (220) that is used to synchronize internal data or tables of the active and standby routers (100,105) by communicating configuration information between the two routers. This synchronization allows the backup router to takeover without delay when the primary router fails (col. 4, lines 54-67). The backup and primary router are analogous to the protection and working CMTSs of the present invention in that they provide protection against failure to maintain service to a client end over a network. The internal data and tables of each of the routers are analogous to registration data stored in the CMTSs of the present invention.

Fijolek discloses a process of registering a cable modem with a CMTS that includes receiving a notification at the CMTS from the cable modem (col. 21, lines 57-60).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the synchronization feature of Baskey to maintain

registration data in both the working device and the protection device before the working device becomes unavailable. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to maintain separate settings for each device. At the time the invention was made it also would have been obvious to send a registration message from the cable modem to the protection CMTS as part of the registering with the protection CMTS. One of ordinary skill in the art would have been motivated to maintain registration data in the protection device prior to the failure of the working device to provide a transparent switchover to the protection device that avoided any disruption in service to the cable modem. One of ordinary skill in the art would have been motivated to maintain separate parameters because each device would have to send its own RF signal frequency settings to the cable modem in order for communication to take place. In the event of failure of the working device, the cable modem would need to have the settings of the protection device in order to resume communication in a protection state. One of ordinary skill in the art would have been motivated to send a registration message from the cable modem to the protection CMTS in order to let the protection CMTS know that the cable modem was registered and could receive data from the protection CMTS.

Regarding claim 39, the system provided by the teaching of Otani in view of Baskey and Fijolek thus far meets all of the limitations except that the registration data comprises an IP address for the working and protection CMTSs. Fijolek discloses a data-over-cable system (10) that includes a cable modem termination system (CMTS) (12), which is connected to a cable modem (CM) (16) via a cable network (14) (see Figure 1). The CM (16) is configurable to keep IP routing tables and is capable of sending a packet

to the CMTS by prepending the packet with the unicast address of the CMTS (col. 10, lines 1-9). Fijolek also discloses that the system (10) may include multiple CMTSs. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the IP routing tables of Fijolek to store the IP addresses of the working and protection devices in the system provided by Otani in view of Baskey and Fijolek thus far. One of ordinary skill in the art would have been motivated to do this in order to route the packets successfully to either one of the devices.

Regarding claim 41, the system provided by the teaching of Otani in view of Baskey and Fijolek thus far fails to disclose that the cable modem (70) is configured to implement DOCSIS. Fijolek discloses that the interface specifications for the CM (16) are defined in Data Over Cable Service Interface Specifications (DOCSIS) (col. 32, lines 14-23). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to implement DOCSIS in the system provided by Otani in view of Baskey and Fijolek thus far. One of ordinary skill in the art would have been motivated to do this because DOCSIS facilitates a variety of data communications service offerings over cable networks.

4. Claims 3, 5, 7, 15 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otani et al. (US 6,449,250) in view of Baskey et al. (US 6,148,410) and Fijolek et al. (US 6,577,642) as applied to claims 1, 2, 4, 6, 8-14, 16-20, 22-31, 38-41 and 43-45 above, and further in view of Chapman (US 6,438,123).

Regarding claims 3 and 21, Otani in view of Baskey and Fijolek discloses all of

the limitations of the claims except that registration comprises specifying DOCSIS compliant parameters. Chapman teaches a system in which a cable modem system (12) that operates according to a protocol such as Data Over Cable System Interface Specification (DOCSIS) (col. 3, lines 50-58). One parameter that identifies a link between a CMTS and a cable modem is DOCSIS Service Identification (SID) (col. 3, 59-65). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the SID as a parameter for registering a cable modem with the protection device in the system provided by Otani in view of Baskey and Fijolek. One of ordinary skill in the art would have been motivated to do this in order to provide the protection device with the identification of the link to the cable modem for which it was to take over service if the system was operating according to DOCSIS protocol.

Regarding claim 5, Otani in view of Baskey and Fijolek discloses all of the limitations except that the protection CMTS obtains the cable modem IP address in a communication with the cable modem. Chapman discloses a connection between a CMTS and a cable modem using the DOCSIS signaling protocol whereby a unique IP flow is established with each connection. The connection may be initiated by the CMTS (col. 5, lines 38-49). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to allow the protection CMTS to establish the IP connection with the protection device in the system provided by Otani in view of Baskey and Fijolek in the event of a failure of the working device, because the failed working device may be unable to provide the IP address if it is completely inoperable.

Regarding claim 7, Otani in view of Baskey and Fijolek fails to disclose that the cable system provides telephony service to the cable modem. Chapman discloses that

cable modem systems are used to carry VoIP packets (col. 1, lines 39-41). In the invention of Chapman, header suppression is applied to a network, and is particularly useful for transmitting VoIP packets in a cable network (col. 1, lines 57-67). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide VoIP service in the cable network in the system provided by Otani in view of Baskey and Fijolek. One of ordinary skill in the art would have been motivated to do this offer a wider variety of services to a cable modem end user in the network of Otani in view of Baskey and Fijolek.

Regarding claim 15, Otani in view of Baskey and Fijolek discloses all of the limitations except that the system is configured to implement DOCSIS. Chapman discloses a cable modem system (12) that operates according to DOCSIS. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to configure the processors and memory to implement DOCSIS. One of ordinary skill in the art would have been motivated to do this in order to provide protection capability to a system that operated according to DOCSIS, such as the system of Chapman.

5. Claims 37 and 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otani et al. (US 6,449,250) in view of Baskey et al. (US 6,148,410) and Fijolek et al. (US 6,577,642) as applied to claims 1, 2, 4, 6, 8-14, 16-20, 22-31, 38-41 and 43-45 above, and further in view of Unger (US 6,477,197).

Regarding claim 37, Otani in view of Baskey and Fijolek fails to expressly disclose that unavailability is indicated by a downstream channel change request. Unger discloses a system wherein each of a plurality of cable modems connected to a particular

input of a CMTS are sent instructions to switch from a frequency X to frequency Y. In response to these instructions, all of the cable modems make the switch (col. 3, lines 51-63). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the instruction to change channel in the invention of Unger to indicate unavailability in the system provided by the teaching of Otani in view of Baskey and Fijolek. One of ordinary skill in the art would have been motivated to do this so that the cable modem may begin using the correct frequency for communication with the protection device.

Regarding claim 42, Otani in view of Baskey and Fijolek fails to expressly disclose that the cable modem is designed to send a channel change response in response to a downstream channel change request from the working CMTS. Unger discloses a system wherein each of a plurality of cable modems connected to a particular input of a CMTS are sent instructions to switch from a frequency X to frequency Y. In response to these instructions, all of the cable modems make the switch (col. 3, lines 51-63). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use this frequency switching process in the system provided by the teaching of Otani in view of Baskey and Fijolek. One of ordinary skill in the art would have been motivated to do this to switch to a more desirable channel that is ingress-free of various outside radio sources.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 8:30am and 6:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu, can be reached at 703-308-6602. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Thomas E. Volper

TEV

August 9, 2004

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